Improving Decision-Making Activities for Malaria and Meningitis Risk Mapping Integration of NASA Products/ Platforms (SERVIR) and UN WHO OpenHealth

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Objectives

1) Develop user-friendly interface which will allow non-experts in remote sensing to:

- Visualize,
- Analyze,
- Extract time series of information and
- Download data for Malaria and Meningitis into formats compatible with the major Geographical Information Systems

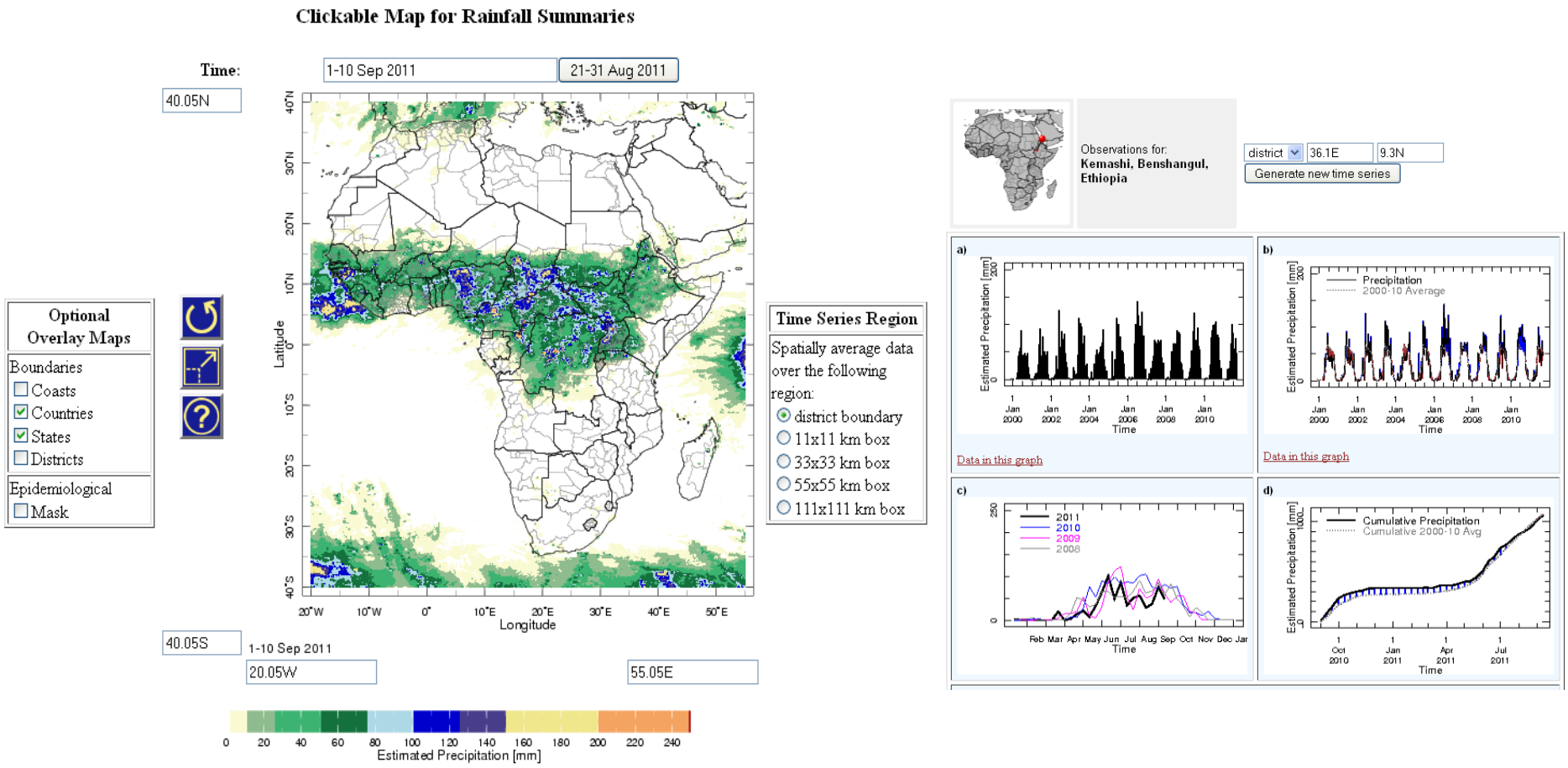
Objectives

2) Integrate the data and dynamical maps within:

- NASA SERVIR
- UN WHO OpenHealth/ Vector Control Decision Support
- Google Earth

To improve the accessibility and diffusion of the data to a large community of health practitioners

Rainfall Estimates



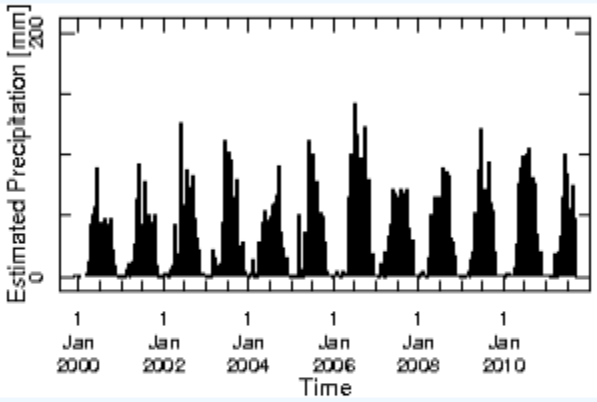
Data and Products Malaria

Observations for:
Kemashi, Benshangul, Ethiopia

district | 36.1E | 9.3N

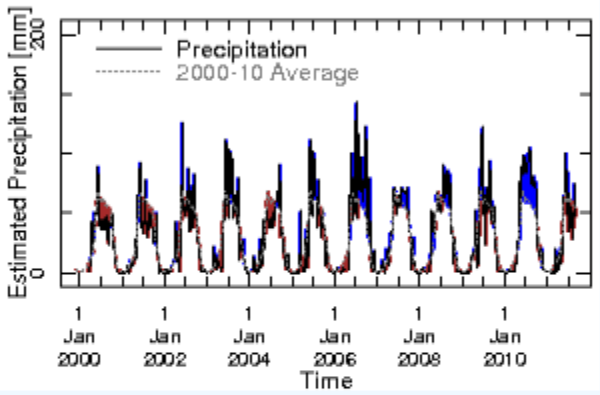
Generate new time series

a)



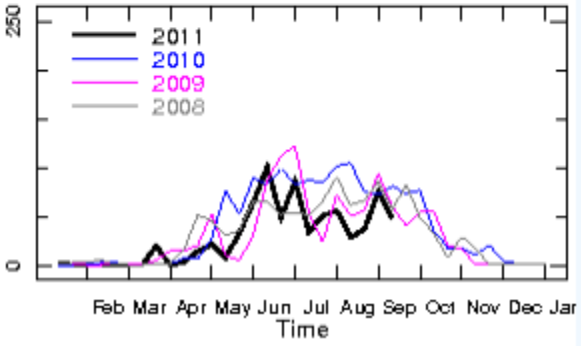
Data in this graph

b)

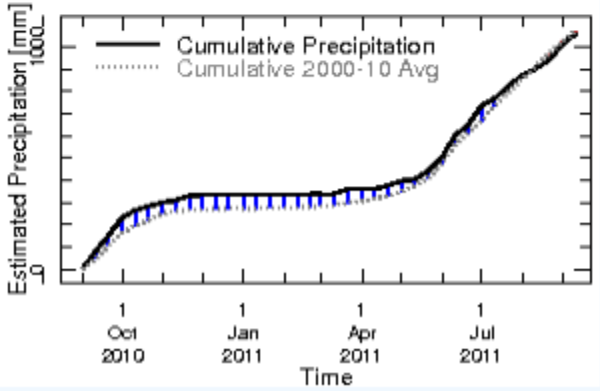


Data in this graph

c)



d)



Data and Products Malaria

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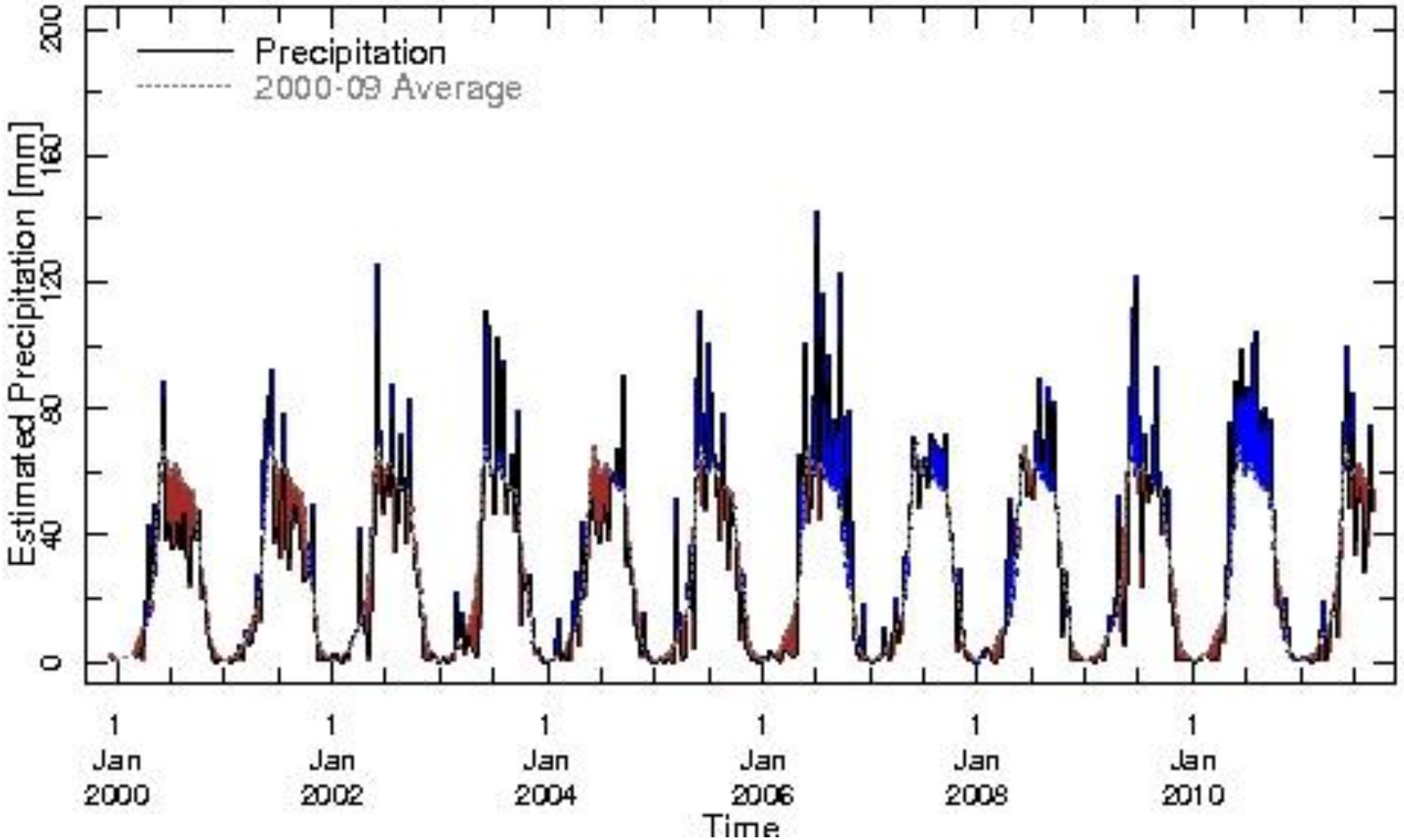
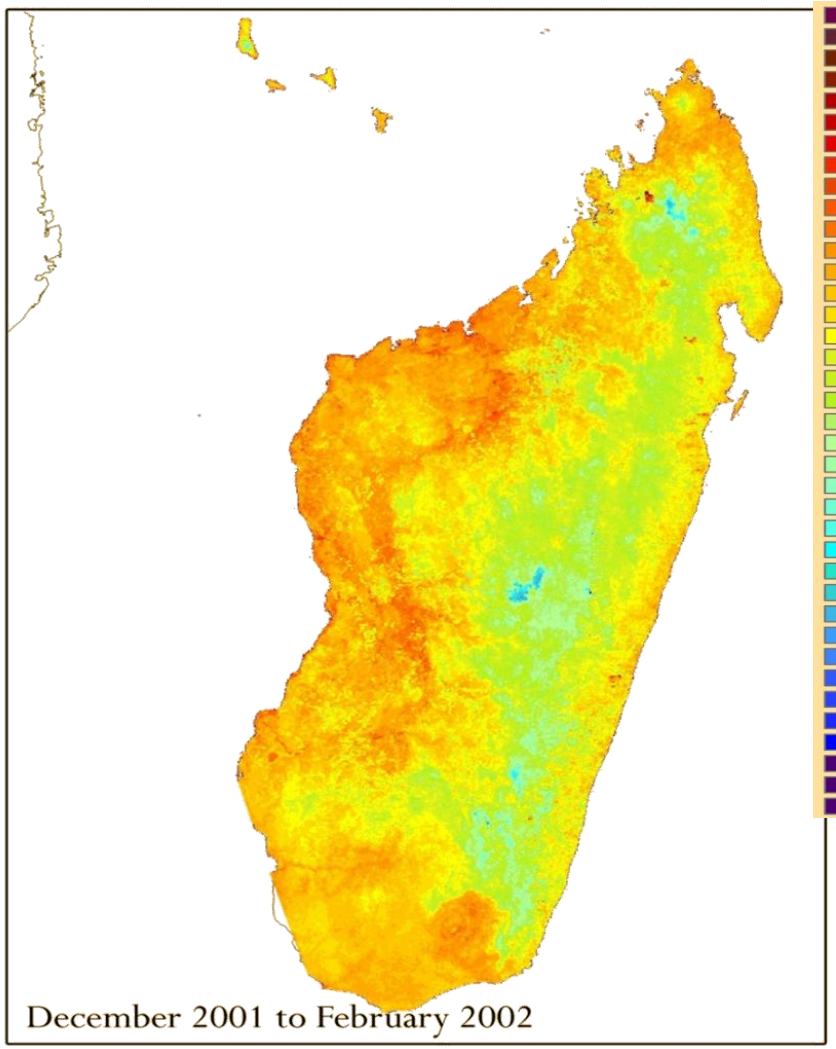
Kemashi, Benshangul, Ethiopia

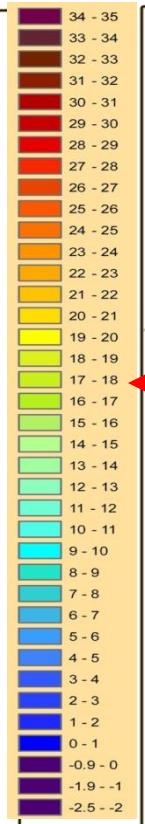


Air Temperature Monitoring

Min air Temp estimated from MODIS LST night

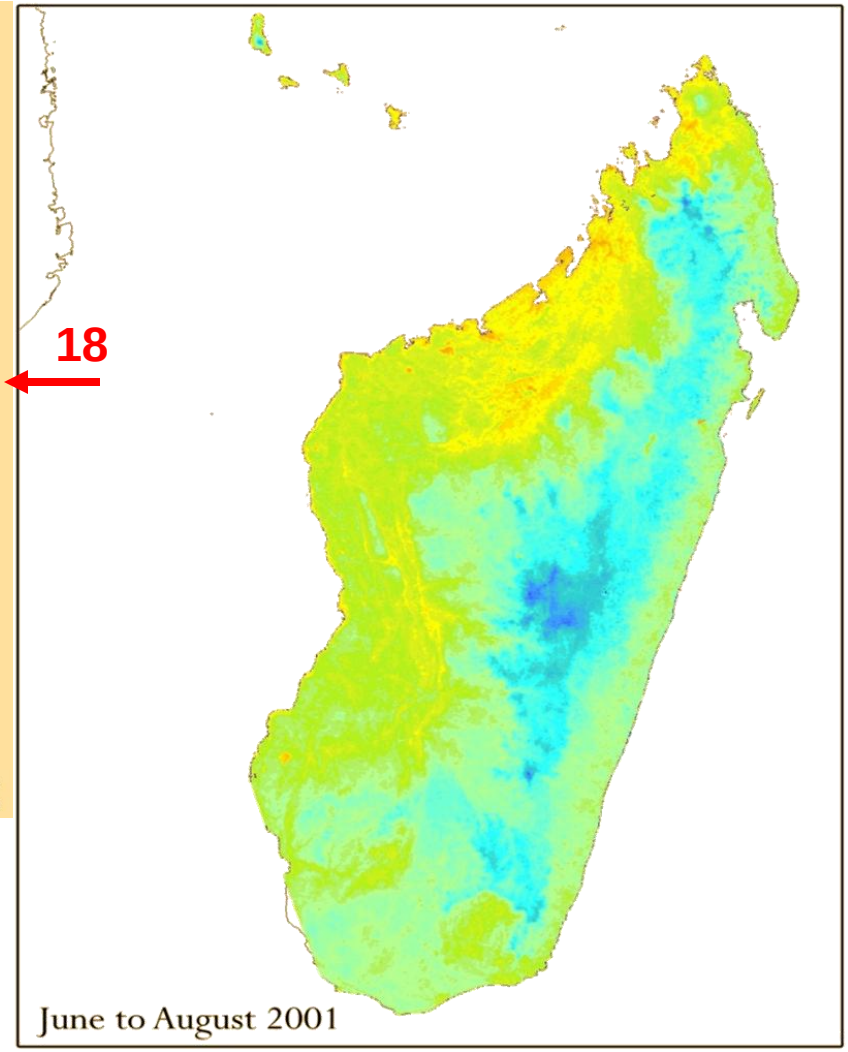
Warmest period





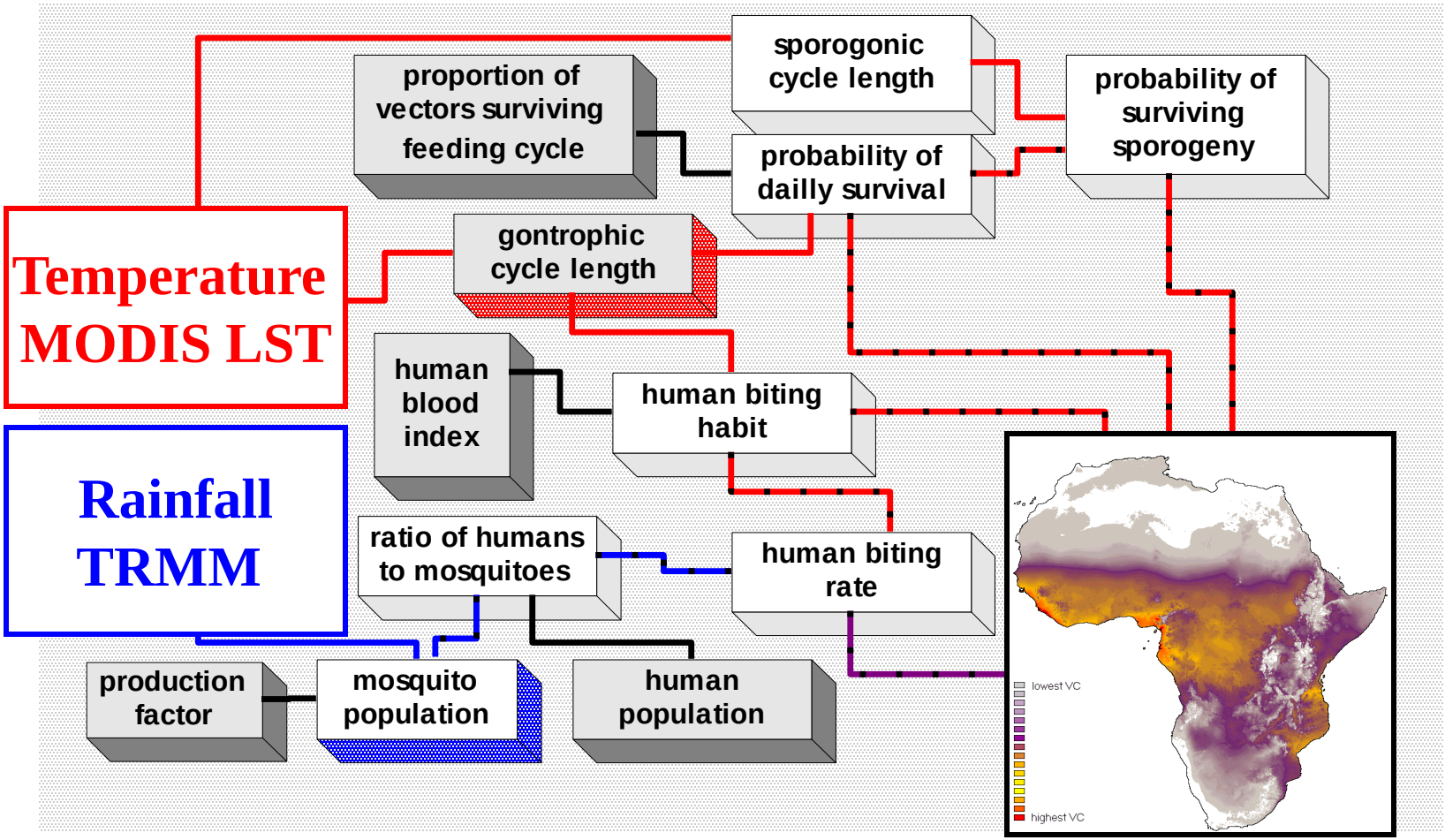
18

Coolest period



Vectorial Capacity

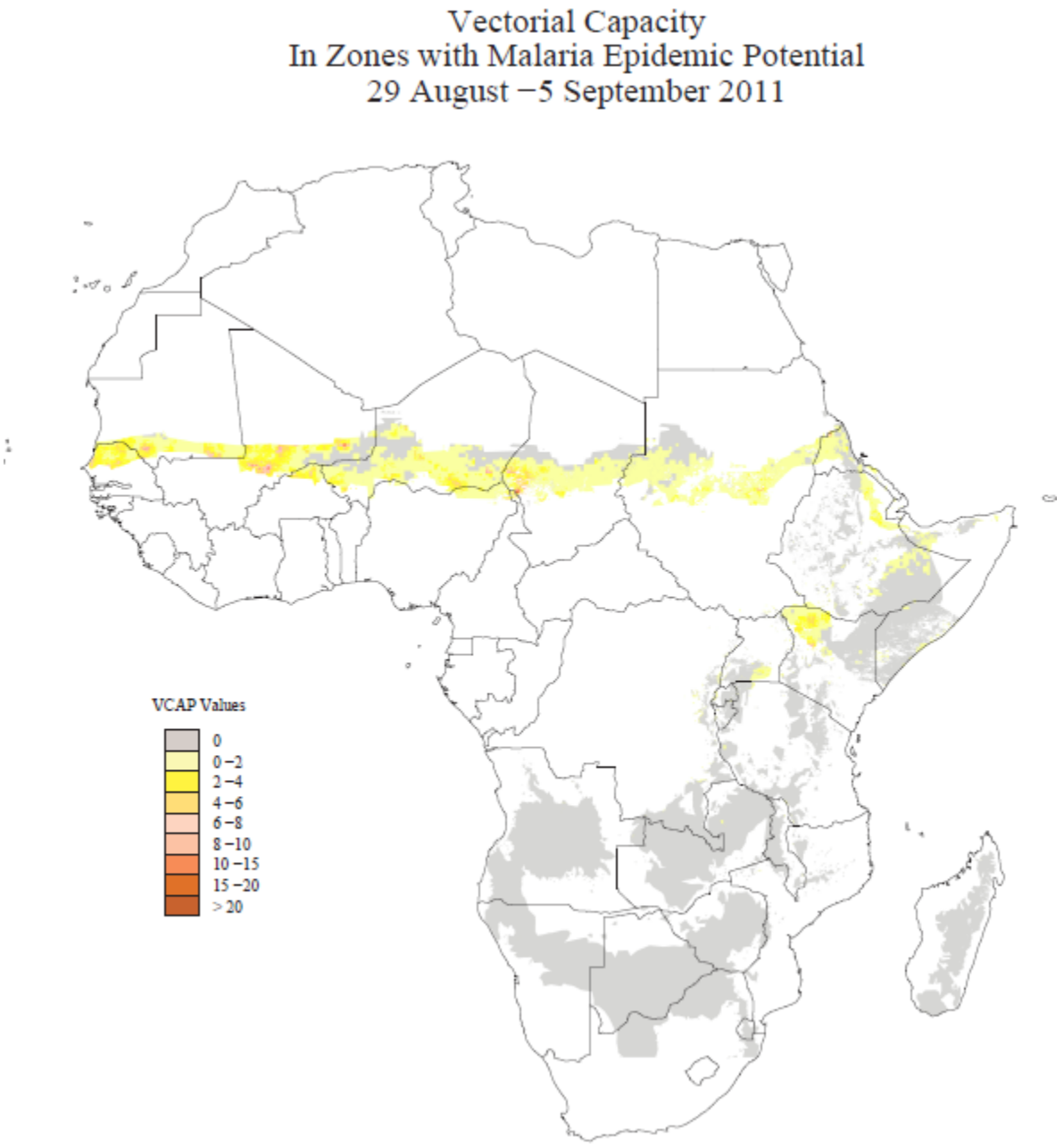
Malaria: Vectorial Capacity $V = ma^2P^n/-lnP$



VCAP

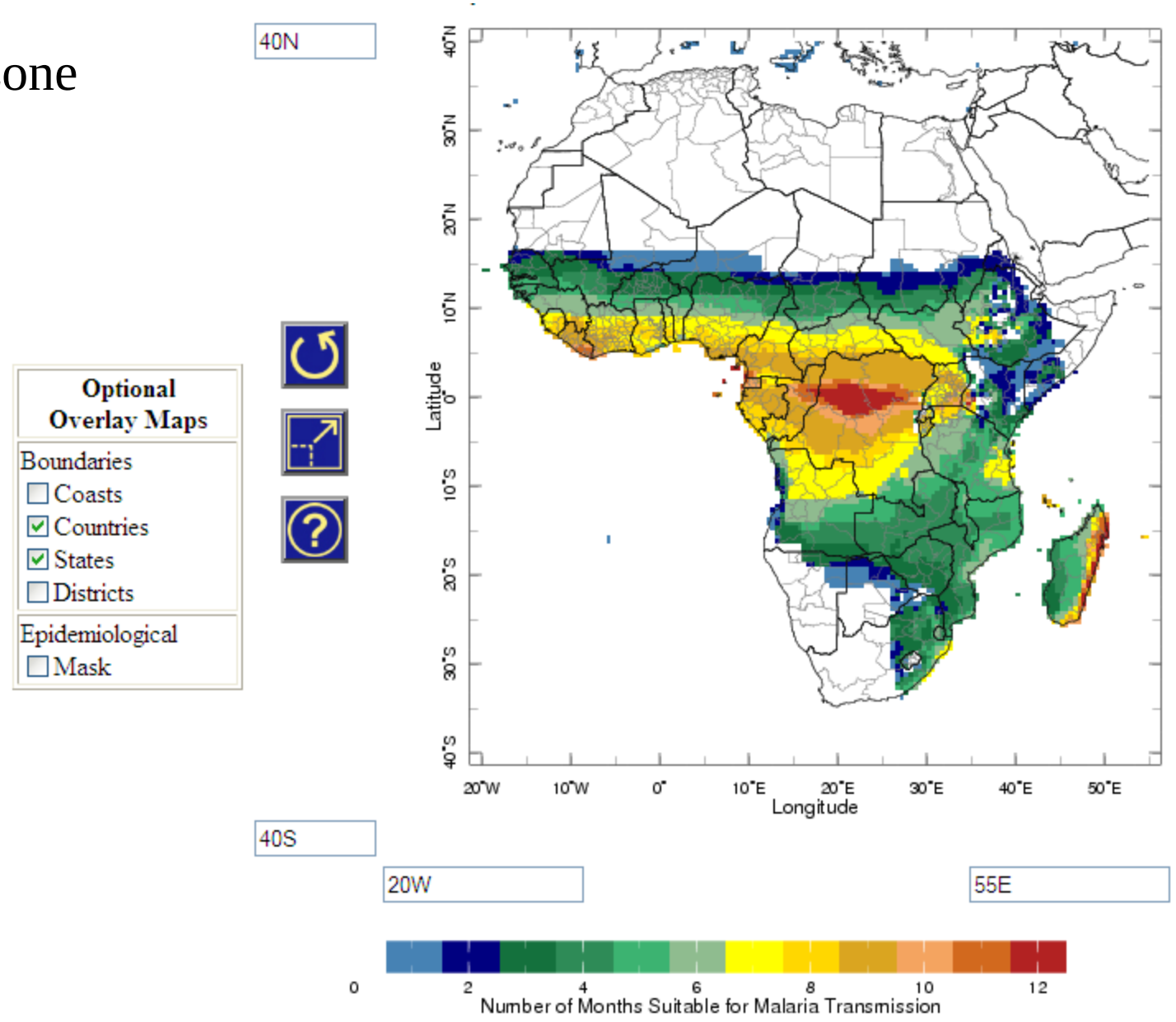
Vectorial Capacity (USGS-IRI)

Epidemic zone



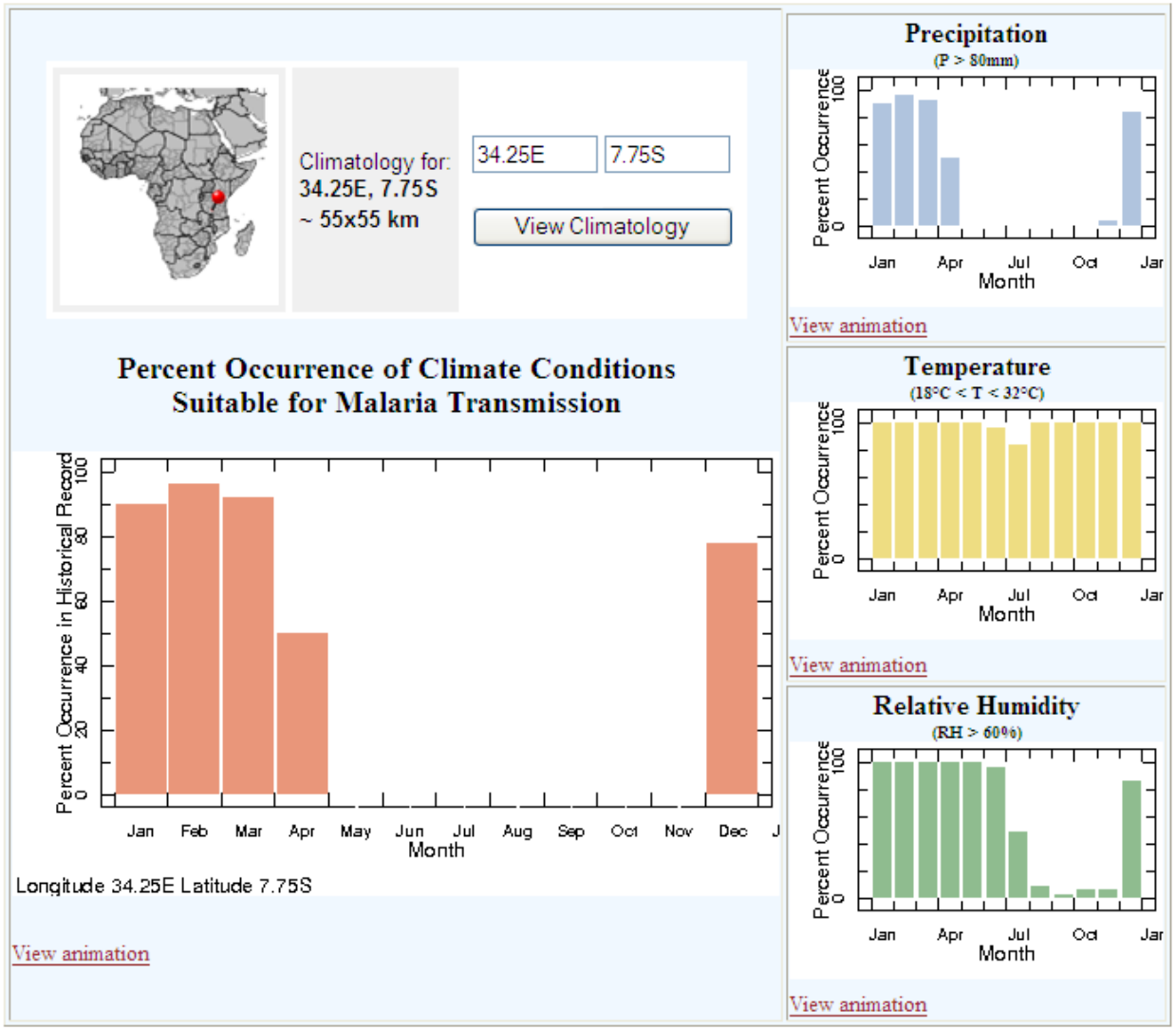
Malaria Suitability Transmission Map

Endemic zone



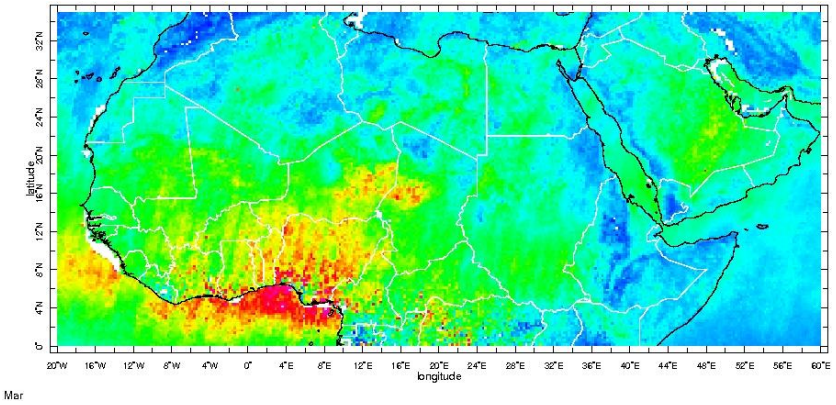
Malaria Suitability Transmission Map

Endemic zone



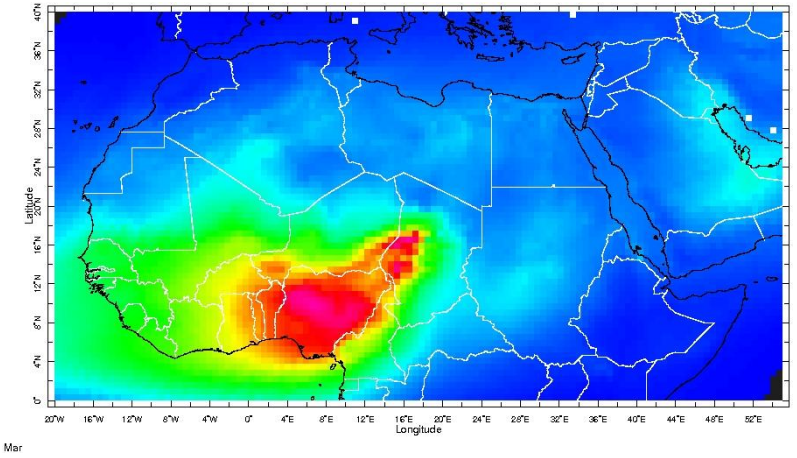
Data and Products Meningitis

Dust

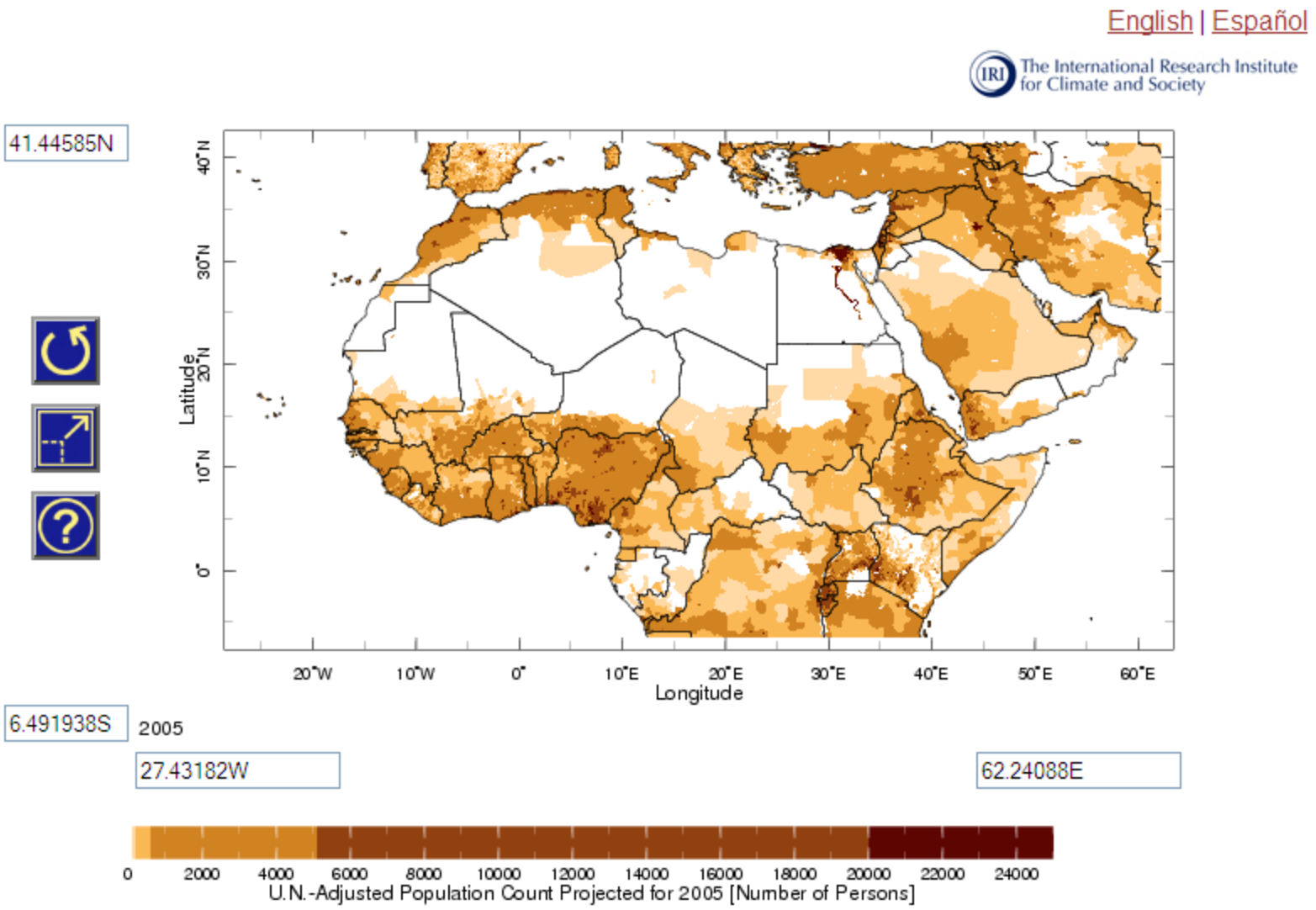


from MISR (NASA JPL),

Models (NASA GISS)



Population Data (CIESIN, Columbia University)



Integration within UN WHO-AFRO OpenHealth

Vector Control Decision Support (VCDS)

- To meet **Roll Back Malaria** and **Millennium** targets, better information is needed on the status and control of malaria and its vectors

- **District Health Officers** need better ways to manage their operations, targets and resources
  - In **Geographical Reconnaissance**
  - Reporting activity from **spray teams** and **net distribution**
  - **Planning** best use of resources
  - **Forecasting** outbreaks and **targeting** operations

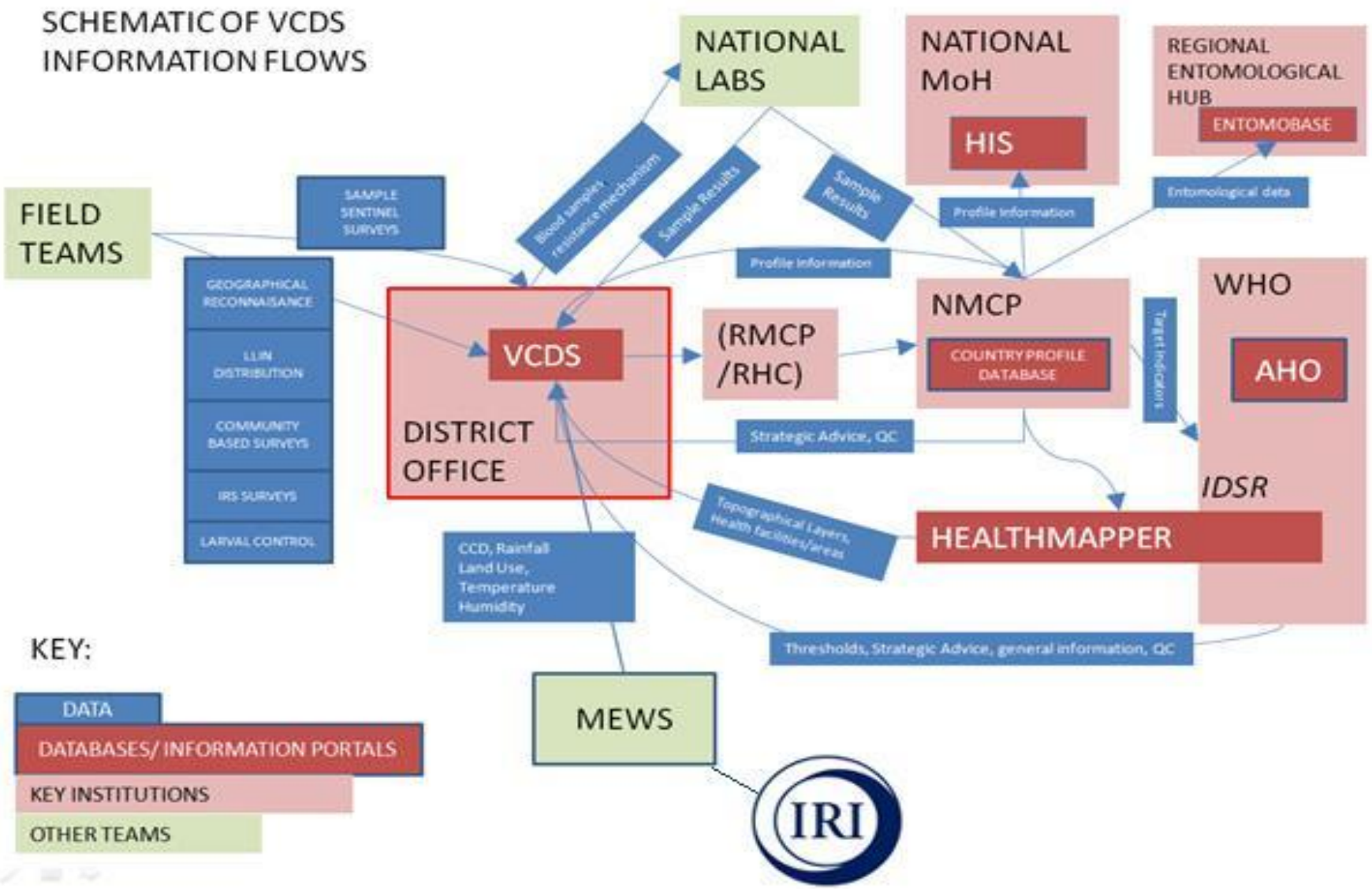
WHO – AFRO End Users

- Main focus is on the District Health Office:
  - Decision making information for **District Health Officer** who carry out the spraying and coordinate net distribution

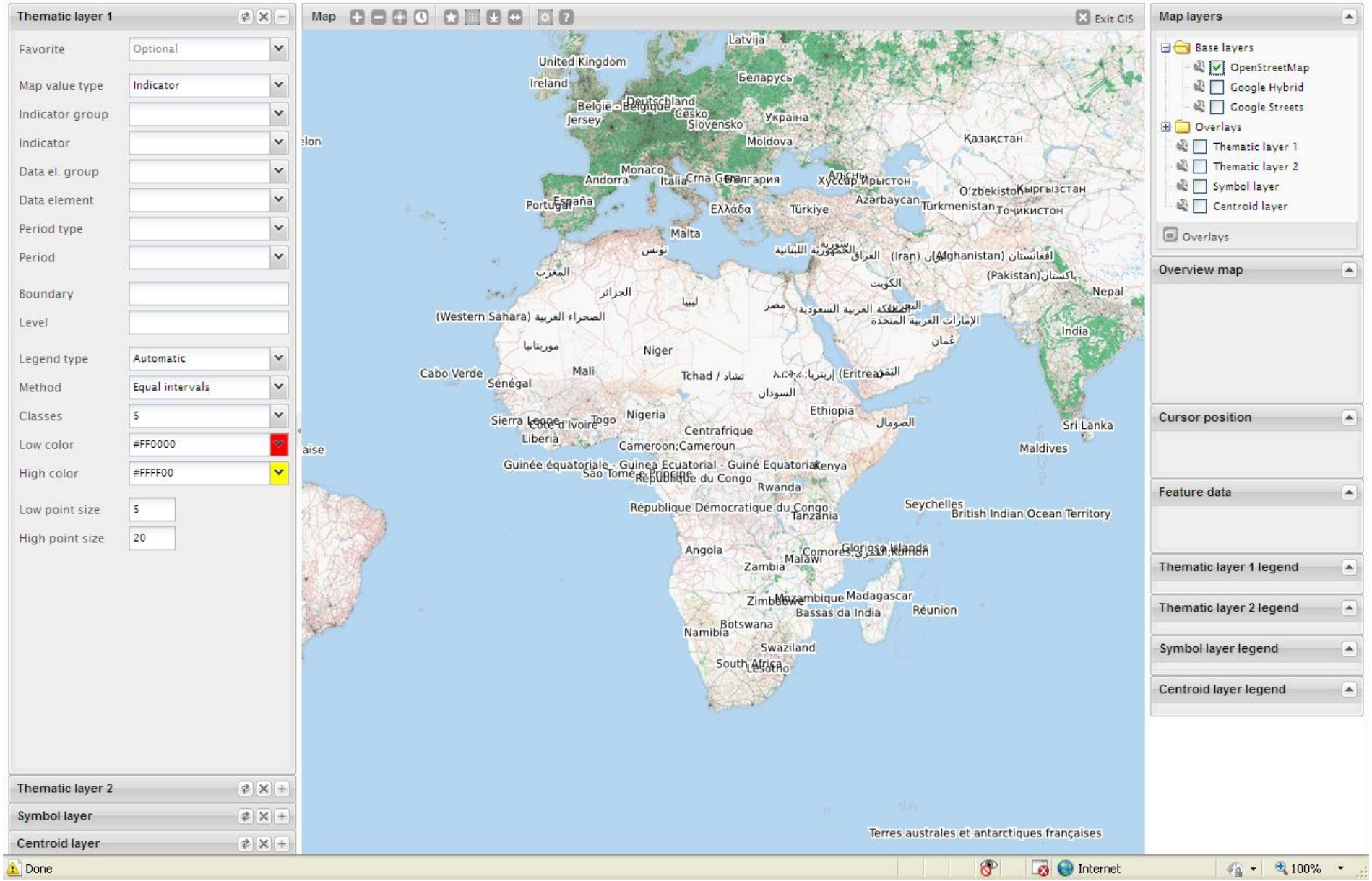
- Other End users:

  - **National Programmes** (monitoring and evaluation of data from all districts)
    - National Malarial Control Programme (NMCP).
    - National Health Information Systems (NHIS).
  - **Regional** efforts to understand and combat malaria
    - Africa Health Observatory (AHO).
    - Data archives for entomological study.
    - Roll Back Malaria (RBM) Targets.

WHO – AFRO Vector Control Decision Support

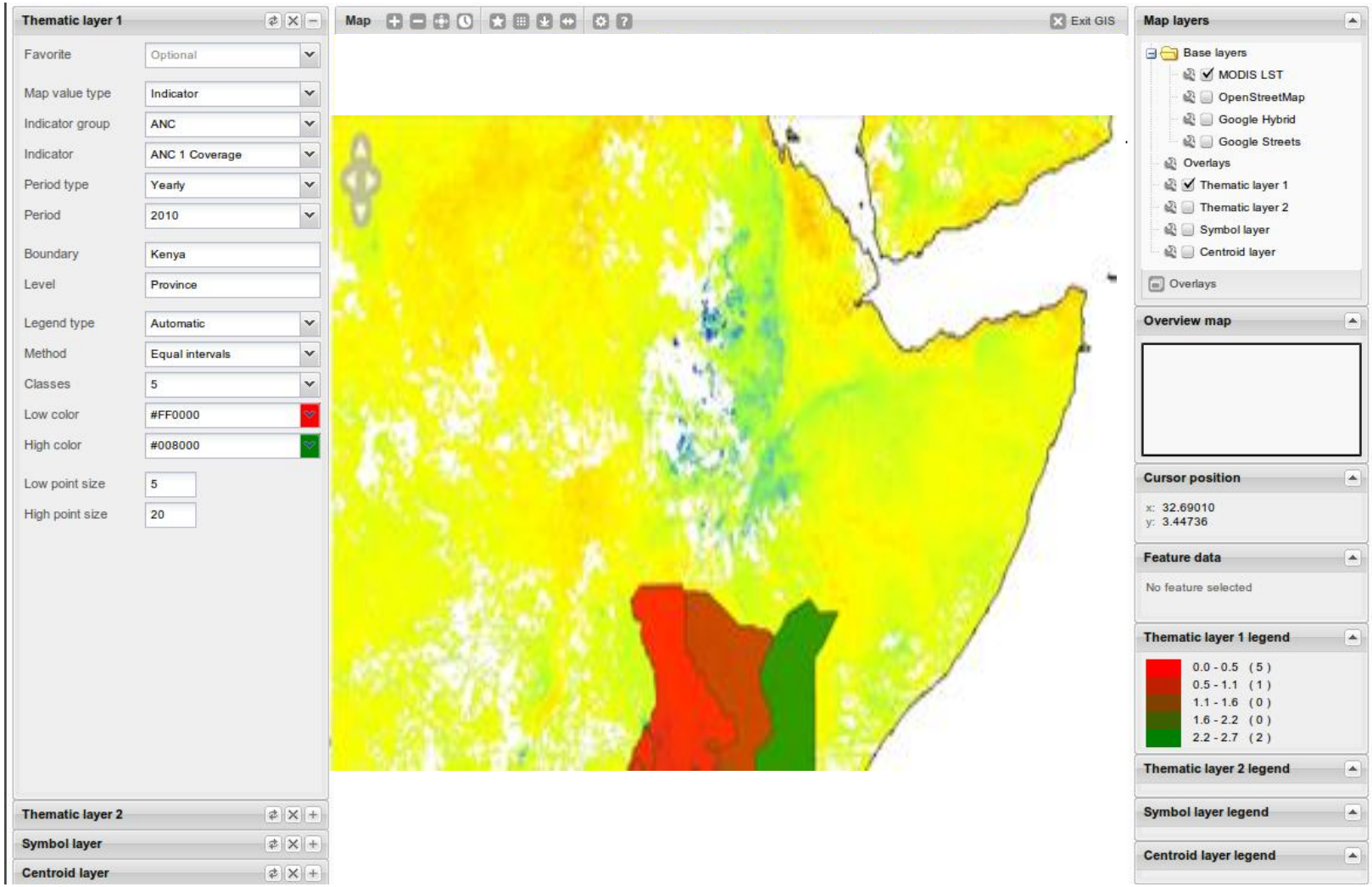


Integration IRI Malaria Products within VCDS

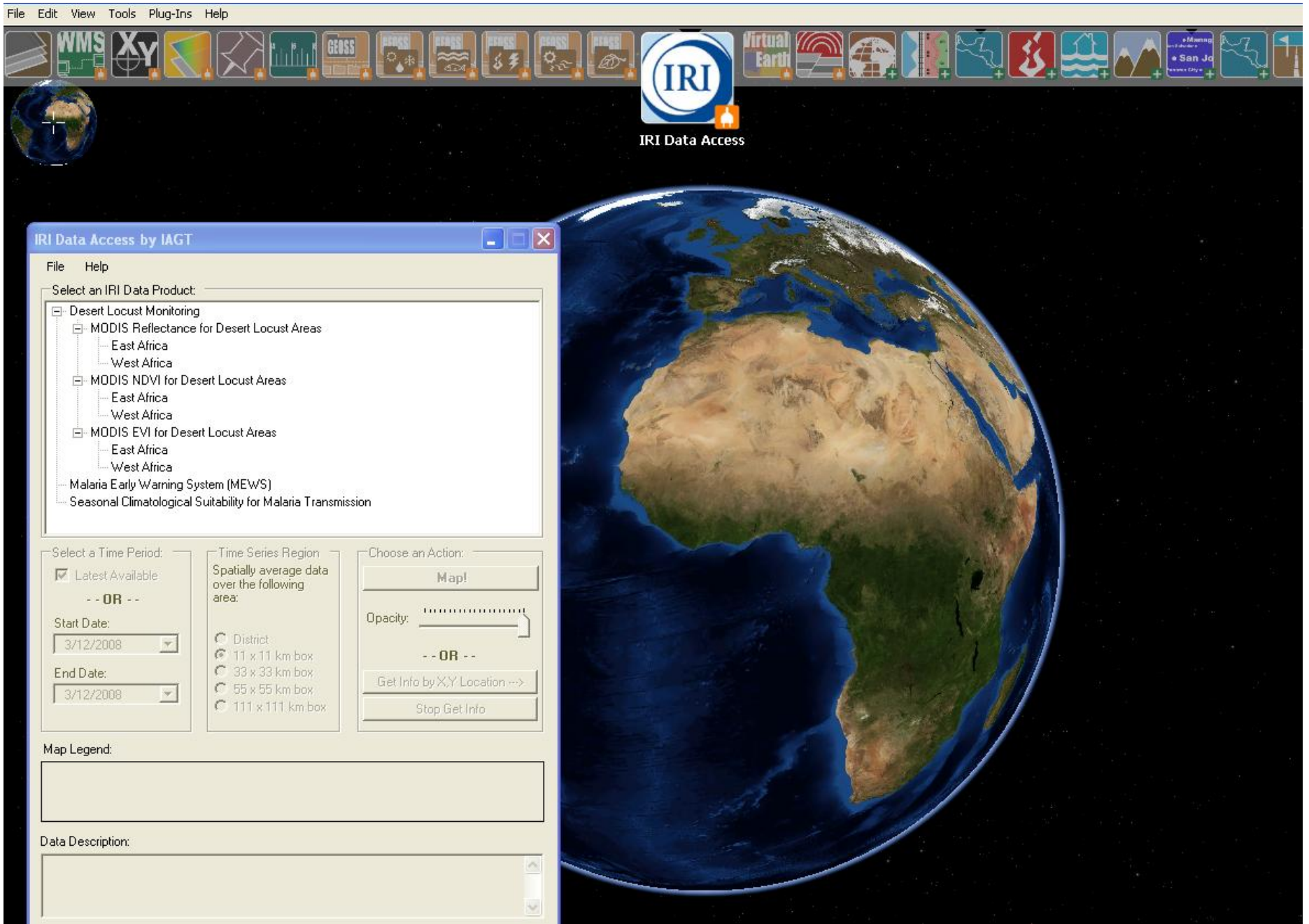


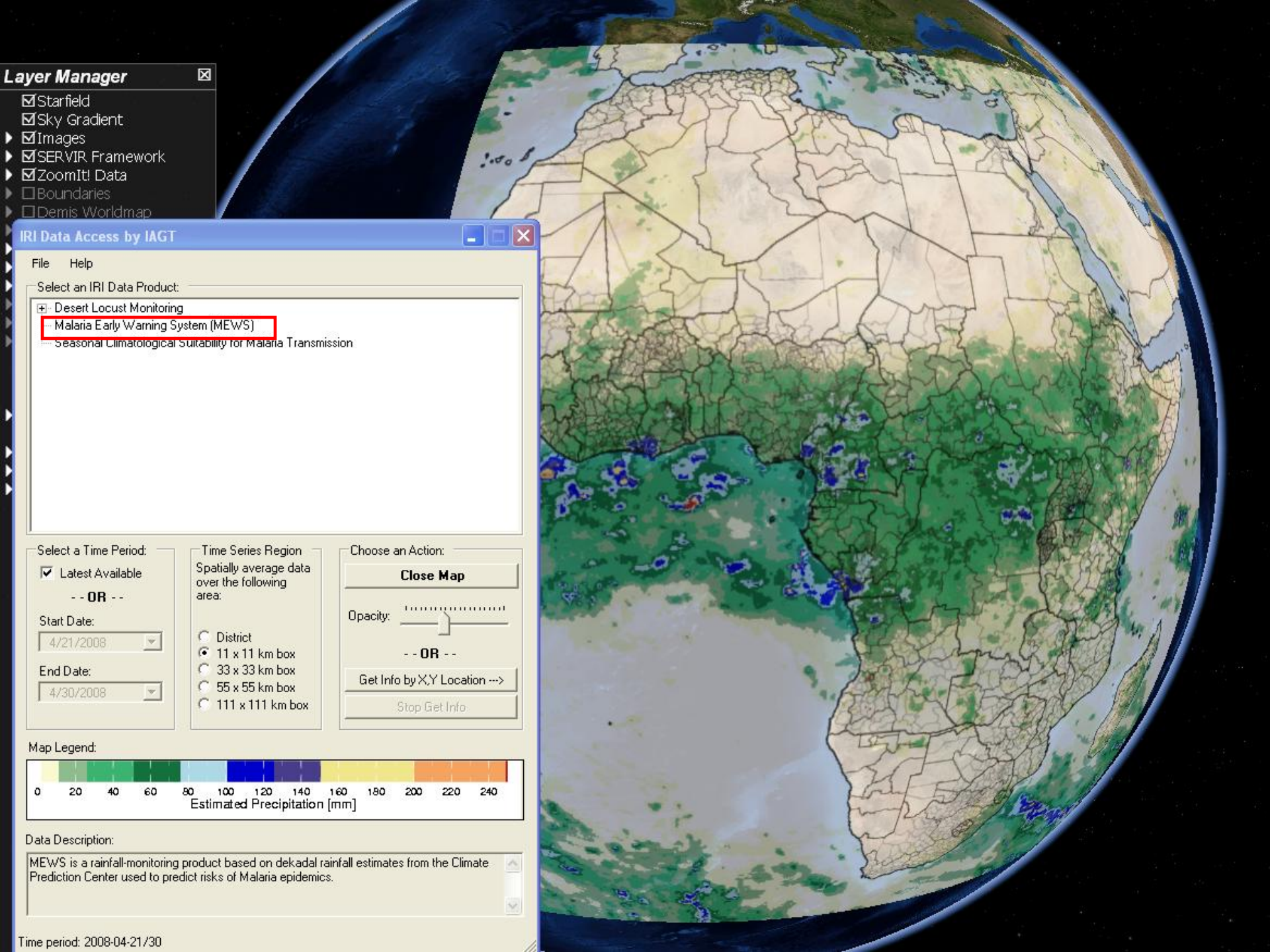
Integration IRI Malaria Products within VCDS

IRI Map Room translated into layers for WMS



SERVIR Integration




Layer Manager
Starfield
Sky Gradient
Images
SERVIR Framework
ZoomIt! Data
Boundaries
Demis Worldmap
IRI Data Access by IAGT
File
Help
Select an IRI Data Product:
Desert Locust Monitoring
Malaria Early Warning System (MEWS)
Seasonal Climatological Suitability for Malaria Transmission
Select a Time Period:
Latest Available
- - OR - -
Start Date:
4/21/2008
End Date:
4/30/2008
Time Series Region
Spatially average data over the following area:
District
11 x 11 km box
33 x 33 km box
55 x 55 km box
111 x 111 km box
Choose an Action:
Close Map
Opacity:
- - OR - -
Get Info by X,Y Location --->
Stop Get Info
Map Legend:
0 20 40 60 80 100 120 140 160 180 200 220 240
Estimated Precipitation [mm]
Data Description:
MEWS is a rainfall-monitoring product based on dekadal rainfall estimates from the Climate Prediction Center used to predict risks of Malaria epidemics.
Time period: 2008-04-21/30

File Edit View Tools Plug-Ins Help

http://iridl.ldeo.columbia.edu/maproom/.

IRI

Data Library

Health

Local
Regional

Local

csmt history
evi
mewsprcp
ndvi

help@iri

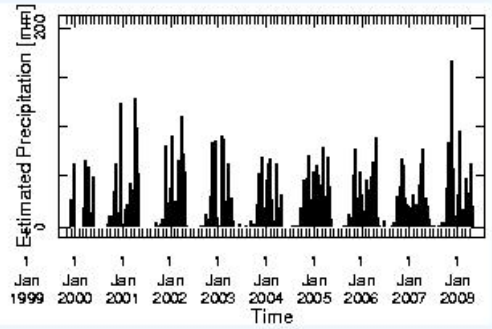
Printable Page

Observations for:
Cazengo, Cuanza Norte, Angola

district | 14.8751764 | 9.20921495

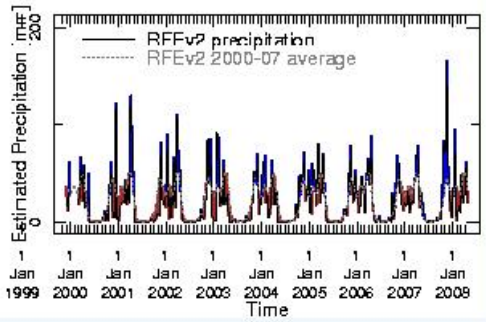
Generate new time series

a)



Data in this graph

b)



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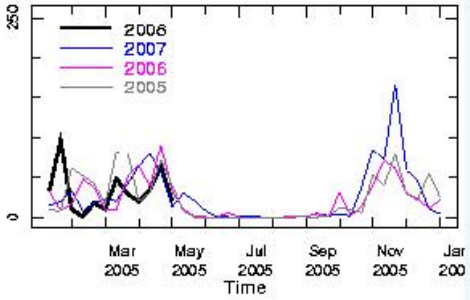
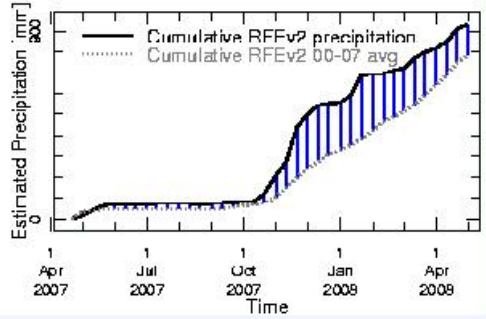
c)



d)

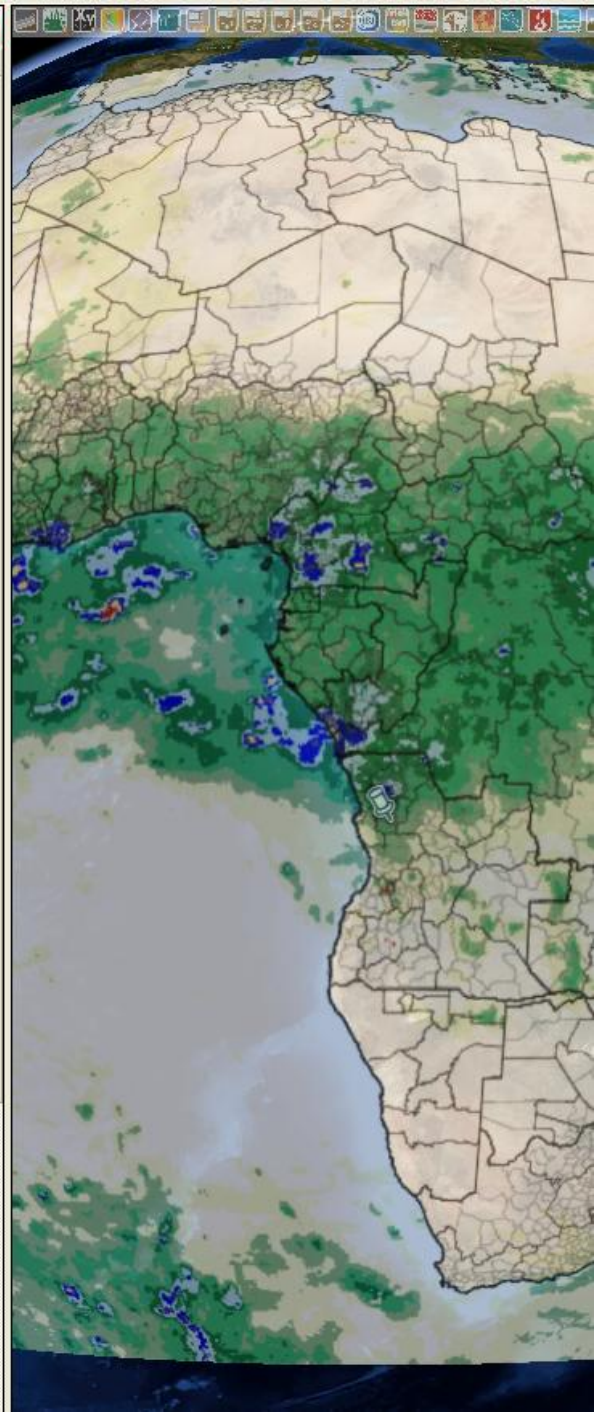


Description

a) Dekadal (i.e., ~10-daily) precipitation estimates for the selected region from Dec 1999 to the present.

b) Same as (a) (solid black line) with the addition of the recent short-term average precipitation for the same region (grey dotted line). The blue (red) bars are indicative of estimates that are above (below) the short-term average. Note that the short-term average precipitation data has been smoothed.

c) Same as (a) for the current year (thick black line), as indicated by the axis labels. Precipitation estimates from previous years are also shown (blue-1 yr from present; magenta- 2 yrs from present; grey-3 yrs from present).



SERVIR Integration

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Please note: If a layer in the Interactive Web Map will not load properly, then it's likely that there are service issues with the Web Map Services (WMS) on the third-party provider's end. We are working on ways to improve our ability to detect issues with our third-party providers' services as they arise. Please report any issues here. Thank you for your assistance!

SERVIR Integration

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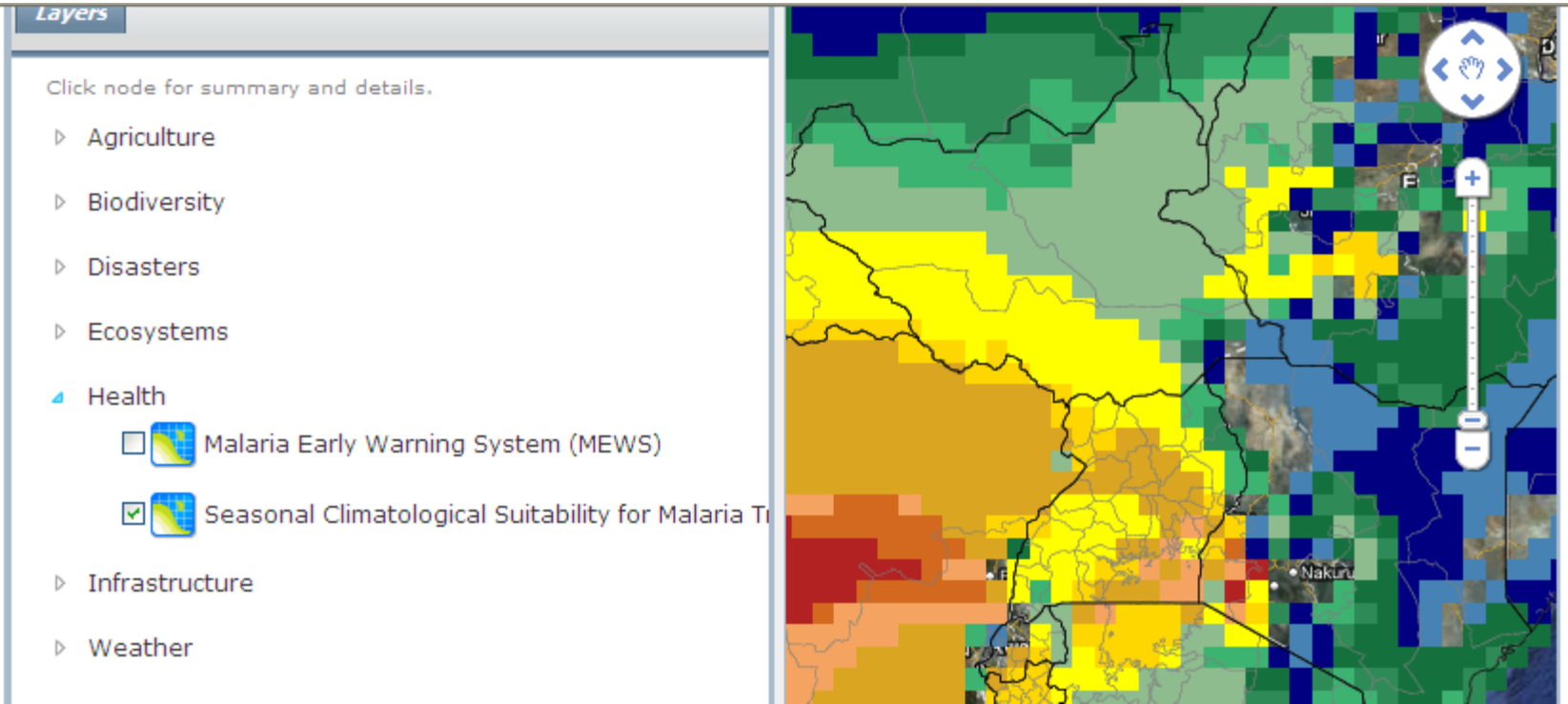
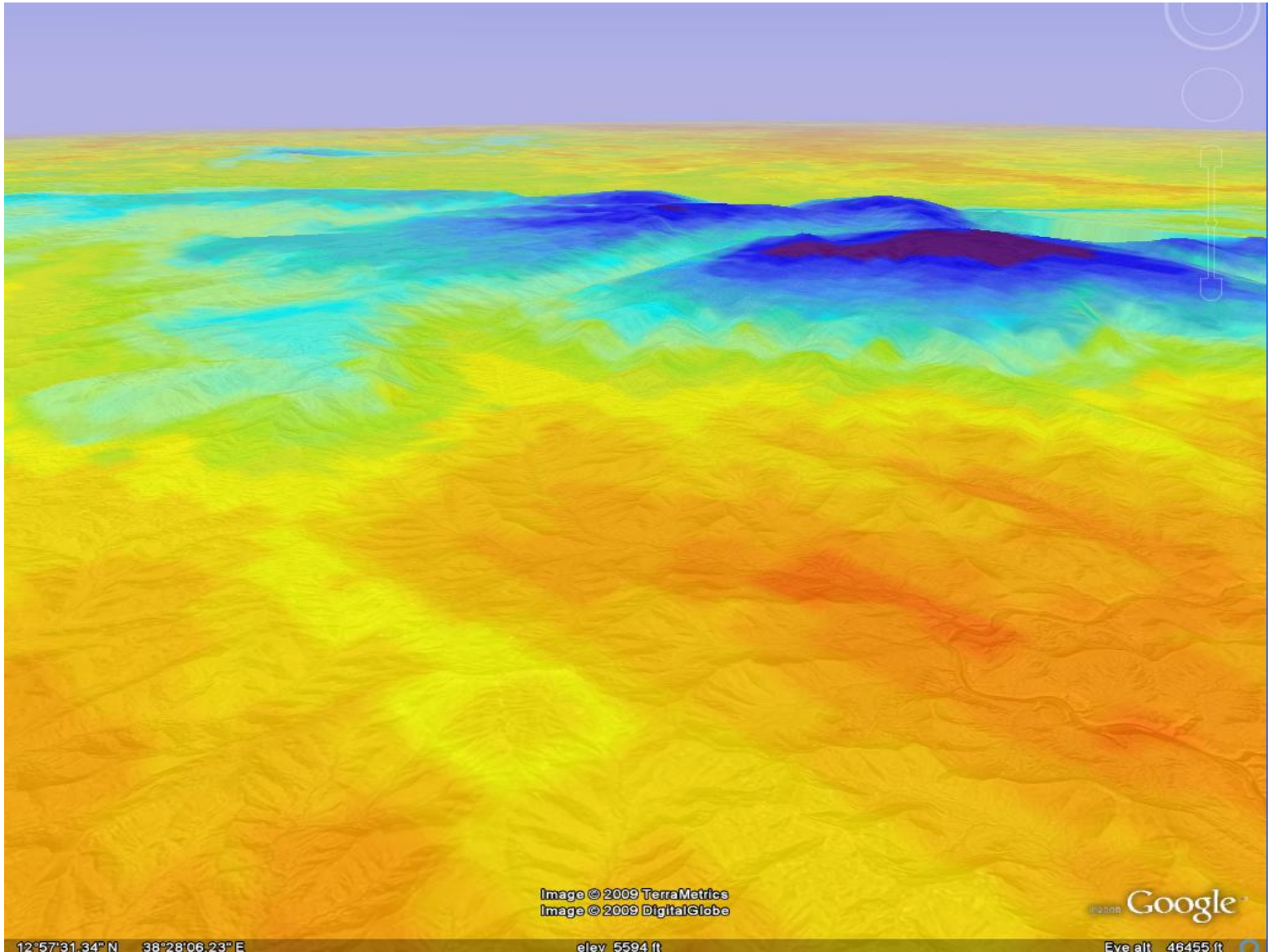


Google Earth Integration

IRI Map Room translated into KML layers



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- IRI Summer Institute (2 weeks) 2008-2009-2010-2011-…

- In Countries: Brazil, Colombia, Ethiopia, Kenya, Madagascar, Uruguay